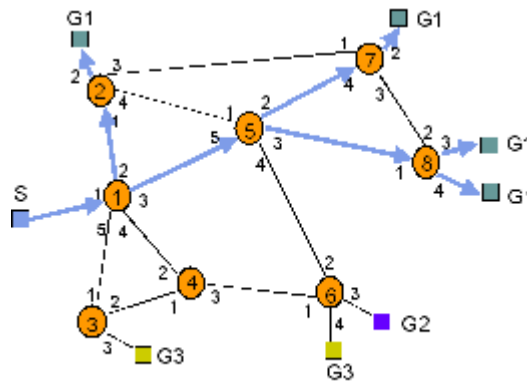


## Internet Protocol

1. A host in an organization has an IP address 150.32.67.34 and a subnet Mask 255.255.240.0. Determine the class of the address. What is the default mask? What is the address of this network? What range of IP addresses available on this network?
2. A small organization has a Class C address for seven networks each with 24 hosts. What is an appropriate subnet mask?
3. A packet may pass through several networks on its way to its destination. Segmentation occurs when an edge router is presented with a packet that is too big to transmit across that network.
  - a) What network characteristic determines the maximum size of packets it can carry?
  - b) Is there any difference between fragmentation and segmentation?
  - c) What is the standard boundary for segmentation?
  - d) Where does re-assembly take place?
4. We currently use IPv4. What are the reasons we may need IPv6? What strategies have been devised for the transition of IPv4 to Ipv6?
5. Source S multicasts live video streaming (rate 1 Mbps) data to destinations of group G1. Using multicasting, when router 1 receives a packet from the source, it copies the packet to router 2 and 5 simultaneously. Upon receipt of these packets, router 2 forwards the packet to its local network, and router 5 copies the packet to routers 7 and 8. The packet will eventually be received by each intended destination.



Calculate the bandwidth consumption in links 1-2 (i.e router 1- router 2), 1-5, 5-7 and 5-8.

Also calculate the bandwidth consumption for the same links, if the routers only use Unicasting.